
TECHNICAL INFORMATION

CYANOVAC Vacuum Chamber Operation

Catalog Nos. VAC150, VAC250, VAC350

INTRODUCTION

The CYANOVAC Vacuum Chamber Outfits are designed to provide vacuum-assisted development of latent fingerprints using cyanoacrylate-fuming compounds. Vacuum-assisted development offers the advantage of reduced cyanoacrylate usage, complete fume dispersal and penetration, and uniform development. Development time is approximately 30 minutes.

Chambers are available in two sizes. The VAC150 will accommodate smaller items such as handguns and knives. The VAC250 is sized to accommodate rifles, shotguns, and other large evidential items. A gun rack and a miscellaneous items tray are provided with the VAC250 model.

For the VAC350 combination unit, SIRCHIE provides the convenience of offering a single pump and a chamber selector valve kit. Complete descriptions of each setup follows.

CAUTIONS

- Before using these units, consult the appropriate Material Safety Data Sheets (MSDS) found on our website at www.sirchie.com/support.

- Do not attempt to fume any object that is under pressure such as soft drinks, aerosol containers, sealed glass or plastic containers. The pressure must be relieved and contents emptied prior to creating a vacuum.
- While it is an accepted practice to add a cup of hot water to fish tanks and other fuming devices, it is strongly recommended that you **DO NOT ADD WATER** to a vacuum chamber.
- Do not wear contact lenses when fuming with cyanoacrylate.

INITIAL ASSEMBLY

To prevent damage, vacuum chambers are shipped without the vacuum gauge installed. The vacuum gauge and hoses must be connected first. All tapered threads are sealed at the factory with two full turns of Teflon® tape. If any part is disassembled, remove the old tape and replace it with two full turns of new tape before reassembly.

For assembly you will need two adjustable wrenches or one each 9/16", 5/8", 11/16", and 13/16" open-end wrenches.

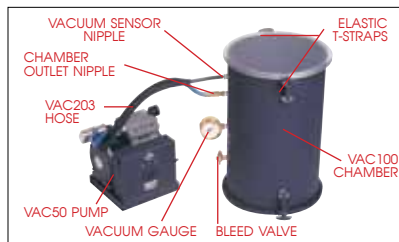
1. Place the chamber and pump on a tabletop or bench to ease assembly.
2. Attach the hose assembly to the chamber outlet nipple. Use one wrench to hold the nipple while the other tightens the hose connector.
3. Install the vacuum gauge in the tapped center hole. Ensure that the Teflon® tape on the gauge threads does not cover the airway into the gauge.
4. Attach the hose assembly to the pump control unit. Use one wrench to hold the nut on the control unit while tightening the hose connector with the other.

FUMING OPERATIONS

To ensure maximum efficiency, the vacuum chambers should only be operated at or near room temperature. Otherwise, the O-rings may not offer an airtight fit.

For VAC150 Vacuum Chamber Outfit

1. Remove the clear polycarbonate end cap from the chamber by releasing the rubber latches. Place the evidence to be processed into the vacuum chamber.
2. Place items on the bottom of the chamber. Items may touch each other or the sides of the chamber without significant effect. Large flexible items such as trash bags should be unfolded to the degree possible, but they need not be fully spread out. Sealed items such as bags with zip closures should be opened to avoid possible rupturing. Do not place pressurized items such as soft drink or aerosol containers in the chamber. The pressure must be relieved and contents emptied before creating the vacuum.
3. Place 5-10 drops of cyanoacrylate fuming compound into a dish and place it in the chamber. Another alternative would be to cut a 1/2 inch strip of a FINDER™ Packet, open it, and place it inside the chamber.
4. Verify that the O-ring(s) is present and then reinstall the end cap(s) and secure with the rubber latches. Verify that the chamber bleed valve is closed.
5. Turn ON the vacuum pump. If using two chambers, be certain that the chamber selector valve is set for the chamber being used.
6. Observe the vacuum gauge to verify that the chamber is being evacuated. Verify that a tight seal exists on the end cap(s) and recheck the bleed valve and selector control as required.
7. The recommended vacuum level is -15 inches of mercury. Should it become necessary to readjust the vacuum pressure, proceed as follows (*it is normal for the pump to re-cycle a few times during this period*):
 - a. Locate the entry hole to the right of the vacuum ON/OFF switch.



- b. Remove black cap with a flathead screwdriver as shown to the right.
- c. With the pump running, adjust the vacuum level with the flathead screwdriver, left or right, until the desired pressure is reached (*see left photo to the far right*).



Remove black cap to access Vac Adjust.

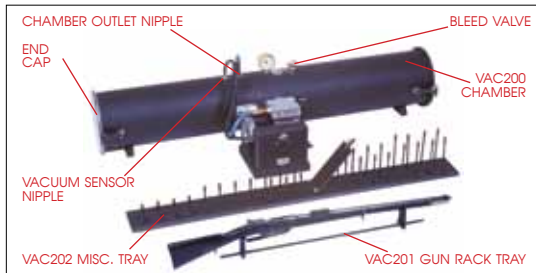


Adjust vacuum level with flathead screwdriver.

8. Allow the evidence to remain under vacuum for at least 30 minutes (*even if left for several hours, over-fuming will not occur*).
9. Switch OFF the pump and open the chamber bleed valve, allowing air to re-enter the chamber. Verify loss of vacuum by observing the *vacuum gauge*.
10. Open the chamber end cap(s) and remove the cyanoacrylate fuming source(s). Allow the evidence to remain undisturbed for 10 minutes.
11. Remove the evidence and examine it for latent prints. If necessary, add contrast to developed prints using fingerprint powders or dye-staining chemicals.

For The VAC250 Vacuum Chamber Outfit

1. Remove the clear polycarbonate end cap *from the chamber by releasing the rubber latches*. Place the evidence to be processed into the vacuum chamber.

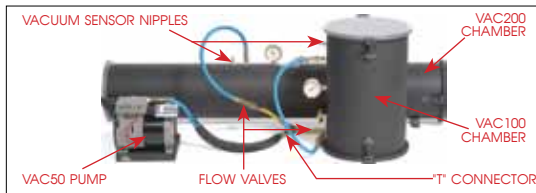


2. Place items on the bottom of the chamber. Items may touch each other or the sides of the chamber without significant effect. Large flexible items such as trash bags should be unfolded to the degree possible, but they need not be fully spread out. Sealed items such as bags with zip closures should be opened to avoid possible rupturing. Do not place pressurized items such as soft drink or aerosol containers in the chamber. The pressure must be relieved and contents emptied before creating the vacuum.
3. Fuming compound should be placed at both ends of the chamber. Use 5-10 drops of cyanoacrylate fuming compound in each dish. Another alternative would be to cut two 1/2 inch strips from a FINDER™ Packet, open them, and place one at each end inside the chamber.
4. Verify that the O-ring(s) is present. Reinstall the end cap(s) and secure with the rubber latches.
5. Verify that the chamber bleed valve is closed and turn the vacuum pump ON. **Note:** *If are using two chambers, be certain that the chamber selector valve is set for the chamber being used.*
6. Observe the vacuum gauge to verify that the chamber is being evacuated. Verify that a tight seal exists on the end cap(s) and recheck the bleed valve and selector control as required.
7. The recommended vacuum level is -15 inches of mercury. Should it become necessary to readjust the vacuum pressure, proceed as follows (*it is normal for the pump to re-cycle a few times during this period*):
 - a. Locate the entry hole behind the vacuum ON/OFF switch.
 - b. Insert the adjusting key into the hole, line it up with the slot in the pump adjustment control.
 - c. With the pump running, move the key to the left or right until the desired pressure is reached.
8. Allow the evidence to remain under vacuum for at least 30 minutes (*even if left for several hours, over-fuming will not occur*).
9. Switch OFF the pump and open the chamber bleed valve, allowing air to re-enter the chamber. Verify loss of vacuum by observing the vacuum gauge.

10. Open the chamber end cap(s) and remove the cyanoacrylate fuming source(s). Allow the evidence to remain undisturbed for 10 minutes.
11. Remove the evidence and examine it for latent prints. If necessary, add contrast to developed prints using fingerprint powders or dye-staining chemicals.

VAC350 CYANOVAC COMBINATION

The VAC350 includes the VAC150 and VAC250 Vacuum Chambers, and a single VAC50 Vacuum Pump. Included with this outfit is the VAC52 Dual Tank Connector Kit containing all the necessary hoses, valves and connections to permit either tank to be operated from a single vacuum pump. **Note:** Review vacuum chamber setup instructions above prior to connecting hoses to each tank.



Make connections to the two vacuum chambers, the “T” Connection and the vacuum pump as shown here.



1. Connect both yellow valve hoses to the “T” Connector.



2. Attach blue vacuum hose from pump to “T” Connector.



3. Attach black vacuum sensor hose from pump to “T” Connector.



4. Attach one blue hose to the VAC100 Tank.

Use wrenches described in INITIAL ASSEMBLY.

Be certain that all connections and tank end caps are tight before proceeding to examine physical evidence. Make a performance check as follows:

1. To test connections on both vacuum chambers, place their flow valves in the OPEN position. Turn ON the vacuum pump and watch the vacuum gauge on both chambers. When they reach (minus) -15 inches Hg., the pump should shut OFF (Figs. 8A-8B).
2. If the pressure fails to reach -15, recheck connections.
3. If -15 inches is maintained for a short time, turn OFF the pump and allow air to reenter the chambers by opening the bleed valves.

Note: To perform fuming operations in the individual chambers, see the previous instructions.

Special Note: During normal operations, you may choose to close the flow valve of the tank not in use. In doing so, the vacuum motor will run in short spurts as the vacuum in the chamber in use drops. This is normal operation and does not indicate a problem with the pump.



5. Connect the other blue hose to the VAC200 Tank.



6. Connect opposite ends of the blue hoses to "T" Connector/Flow Valve assembly.



7. Install plastic caps on the vacuum sensor ports of both tanks.



8A. Flow Valve shown in OPEN position.



8B. Flow Valve shown in CLOSED position.

PHOTOGRAPHY

Once a degree of contrast has been added to the developed prints, photograph the prints before attempting to lift them. DO NOT attempt to lift cyanoacrylate prints that have not been powdered because the acrylic solvent used in most tapes and Hinge Lifters will dissolve prints in a short time.

MAINTENANCE

Avoid nicking or denting the ends of the chamber because a smooth, clean surface is needed to ensure a good vacuum. If slight damage occurs, restore the surface with a fine file and emery cloth, or call the factory for return authorization.

These chambers are designed to operate without grease on the O-rings. DO NOT apply grease unless it is approved commercial vacuum grease. Normal grease, oil, or petroleum jelly will outgas under vacuum and may coat the evidence, which will prevent development of latent prints.

In time, the O-rings will become brittle and cause unusual cycling of the vacuum pump. Replace the O-rings when this occurs.

Very little, if any, cyanoacrylate residue will buildup inside the chamber. It is good practice, however, to wipe down the interior with a damp cloth and a common household cleaner each time the chamber is used.

Should it become necessary to return the unit to the factory, please call SIRCHIE Customer Service at 800-356-7311 for return instructions/authorization.

VAC150 CONTENTS:

- 1- VAC100 Vacuum Chamber for Cyanoacrylate Development, 17"
- 1- VAC50 Vacuum Pump, diaphragm type

VAC250 CONTENTS:

- 1- VAC200 Vacuum Chamber for Cyanoacrylate Development, 48"
- 1- VAC201 Gun Rack Tray
- 1- VAC202 Misc. Items Tray
- 1- VAC203 Glue Pack Holder
- 1- VAC50 Vacuum Pump, diaphragm type

VAC350 CONTENTS:

- 1- VAC100 Vacuum Chamber, 17"
- 1- VAC200 Vacuum Chamber, 48"
- 1- VAC201 Gun Rack Tray
- 1- VAC202 Misc. Items Tray
- 1- VAC203 Glue Pack Holder
- 1- VAC50 Vacuum Pump, diaphragm type
- 1- VAC52 Dual Tank Connector Kit